

Integrating the Effects of Global and Local Climate Change on Wildlife in North America

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Overview: Climate in the southeastern US is predicted to be changing at a slower rate than other parts of North America; however, land use change associated with urbanization is having a significant effect on wildlife populations and habitat availability. Little is known about the effect of urbanization on future projections of climate change, the objective of this project is to determine the effect of urbanization on future climate projections and how those projections, including urbanization, affect wildlife habitat and populations in the Southeast.

Project Goal: Integrating urbanization into climate change models and evaluating the effects of predicting warming on tree pests and diseases and wildlife.

Deliverables: This project is a two-year project (FY11 and FY12) that builds upon research already being conducted at NCSU and partner universities and research organizations.

1. North American maps of current ground temperatures and maps and models of future ground temperatures due to urbanization (in collaboration with NASA and University of Maryland)
2. Incorporation of urbanization models into regional climate change models
3. Maps of species (various) distribution through time
4. Develop a predictive model of future species (various) distribution with increased urbanization and changing climate
5. Google Earth application that will allow the general public to view the potential consequences of climate change on the landscape (in conjunction with NC Museum of Natural Sciences and linked to globalchangeforum.com)

Timeline:

- September 2011: Field research on pests and current urbanization model.
- December 2011: Current urbanization model + future urbanization + global warming model.
- March 2012: Analyzes of field data and existing specimen data relative to new models.
- July 2012: Three papers completed + online tools developed.